

This Page Is Inserted by IFW Operations
and is not a part of the Official Record

BEST AVAILABLE IMAGES

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images may include (but are not limited to):

- BLACK BORDERS
- TEXT CUT OFF AT TOP, BOTTOM OR SIDES
- FADED TEXT
- ILLEGIBLE TEXT
- SKEWED/SLANTED IMAGES
- COLORED PHOTOS
- BLACK OR VERY BLACK AND WHITE DARK PHOTOS
- GRAY SCALE DOCUMENTS

IMAGES ARE BEST AVAILABLE COPY.

**As rescanning documents *will not* correct images,
please do not report the images to the
Image Problems Mailbox.**

PCT

WORLD INTELLECTUAL PROPERTY ORGANIZATION
International Bureau

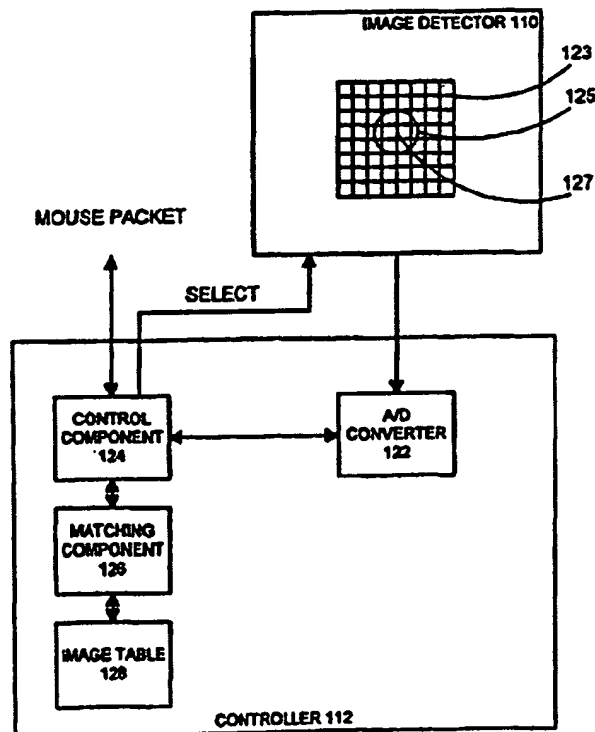
INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification 7 : G06K 11/08, 11/18, 11/20, G06F 3/033		A3	(11) International Publication Number: WO 00/38103 (43) International Publication Date: 29 June 2000 (29.06.00)
(21) International Application Number: PCT/US99/30507 (22) International Filing Date: 21 December 1999 (21.12.99) (30) Priority Data: 09/217,403 21 December 1998 (21.12.98) US (71) Applicant: MICROSOFT CORPORATION [US/US]; One Microsoft Way, Redmond, WA 98052-6399 (US). (72) Inventors: ADAN, Manolito, E.; 16843 N.E. 159th Place, Woodinville, WA 98072 (US). LIPSCOMB, Terry, M.; 103 Cascade Key, Bellevue, WA 98006 (US). (74) Agents: KELLY, Joseph, R. et al.; Westman, Champlin & Kelly, P.A., Suite 1600 - International Centre, 900 Second Avenue South, Minneapolis, MN 55402-3319 (US).		(81) Designated States: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG). Published With international search report. Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments. (88) Date of publication of the international search report: 26 October 2000 (26.10.00)	

(54) Title: IMAGE SENSING OPERATOR INPUT DEVICE

(57) Abstract

A computer input device (42) detects images on a surface (116). The computer input device (42) generates input information indicative of a change event when the device (42) switches from reading one predetermined pattern to reading another predetermined pattern. The present invention can also be directed to a method of using the input device (42) or printable medium with the predetermined patterns disposed thereon.



FOR THE PURPOSES OF INFORMATION ONLY

Codes used to identify States party to the PCT on the front pages of pamphlets publishing international applications under the PCT.

AL	Albania	ES	Spain	LS	Lesotho	SI	Slovenia
AM	Armenia	FI	Finland	LT	Lithuania	SK	Slovakia
AT	Austria	FR	France	LU	Luxembourg	SN	Senegal
AU	Australia	GA	Gabon	LV	Latvia	SZ	Swaziland
AZ	Azerbaijan	GB	United Kingdom	MC	Monaco	TD	Chad
BA	Bosnia and Herzegovina	GE	Georgia	MD	Republic of Moldova	TG	Togo
BB	Barbados	GH	Ghana	MG	Madagascar	TJ	Tajikistan
BE	Belgium	GN	Guinea	MK	The former Yugoslav Republic of Macedonia	TM	Turkmenistan
BF	Burkina Faso	GR	Greece	ML	Mali	TR	Turkey
BG	Bulgaria	HU	Hungary	MN	Mongolia	TT	Trinidad and Tobago
BJ	Benin	IE	Ireland	MR	Mauritania	UA	Ukraine
BR	Brazil	IL	Israel	MW	Malawi	UG	Uganda
BY	Belarus	IS	Iceland	MX	Mexico	US	United States of America
CA	Canada	IT	Italy	NE	Niger	UZ	Uzbekistan
CF	Central African Republic	JP	Japan	NL	Netherlands	VN	Viet Nam
CG	Congo	KE	Kenya	NO	Norway	YU	Yugoslavia
CH	Switzerland	KG	Kyrgyzstan	NZ	New Zealand	ZW	Zimbabwe
CI	Côte d'Ivoire	KP	Democratic People's Republic of Korea	PL	Poland		
CM	Cameroon	KR	Republic of Korea	PT	Portugal		
CN	China	KZ	Kazakhstan	RO	Romania		
CU	Cuba	LC	Saint Lucia	RU	Russian Federation		
CZ	Czech Republic	LJ	Liechtenstein	SD	Sudan		
DE	Germany	LK	Sri Lanka	SE	Sweden		
DK	Denmark	LR	Liberia	SG	Singapore		
EE	Estonia						

INTERNATIONAL SEARCH REPORT

International Application No
PCT/US 99/30507

A. CLASSIFICATION OF SUBJECT MATTER IPC 7 G06K11/08 G06K11/18 G06F3/033 G06K11/20		
According to International Patent Classification (IPC) or to both national classification and IPC		
B. FIELDS SEARCHED Minimum documentation searched (classification system followed by classification symbols) IPC 7 G06K G06F		
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched		
Electronic data base consulted during the international search (name of data base and, where practical, search terms used) EPO-Internal, WPI Data, PAJ, IBM-TDB		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	WO 94 10652 A (MAK STEPHEN M) 11 May 1994 (1994-05-11) the whole document	1-6, 10-13, 16-28, 35-45
X	"VARIABLE GRID PATTERN FOR OPTICAL MOUSE CONTACT SURFACES" IBM TECHNICAL DISCLOSURE BULLETIN, vol. 31, no. 8, January 1989 (1989-01), pages 237-240, XP000047012 Armonk, NY,US the whole document	1-6,10, 12, 17-28, 37,39
-/-		
<input checked="" type="checkbox"/> Further documents are listed in the continuation of box C.		
<input checked="" type="checkbox"/> Patent family members are listed in annex.		
* Special categories of cited documents : "A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier document but published on or after the international filing date "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) "O" document referring to an oral disclosure, use, exhibition or other means "P" document published prior to the international filing date but later than the priority date claimed "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention "X" document of particular relevance: the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone "Y" document of particular relevance: the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art. "A" document member of the same patent family		
Date of the actual completion of the international search 17 July 2000		Date of mailing of the international search report 01 09. 2000
Name and mailing address of the ISA European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl Fax: (+31-70) 340-3016		Authorized officer Ciarelli, N

INTERNATIONAL SEARCH REPORT

International Application No.
PCT/US 99/30507

C(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	"PROGRAMMABLE LIQUID CRYSTAL DISPLAY MOUSE PADS" IBM TECHNICAL DISCLOSURE BULLETIN, vol. 32, no. 38, August 1989 (1989-08), pages 211-213, XP000029875 Armonk, NY, US the whole document	1
A	DE 295 15 871 U (TOP DISPLAY BERATUNGS UND PROD) 16 November 1995 (1995-11-16) page 4, paragraph 3	1,9
X	US 5 848 231 A (BORZA MICHAEL A ET AL) 8 December 1998 (1998-12-08)	40
A	the whole document	14
X	GB 2 312 040 A (XEROX CORP) 15 October 1997 (1997-10-15)	40
A	page 3, last paragraph -page 4, last paragraph	14
X	US 4 804 949 A (FAULKERSON JAMES L) 14 February 1989 (1989-02-14) abstract column 7, line 21 - line 26 column 7, line 49 - line 53 figures 9A,9B	30-34
A	US 4 961 138 A (GORNIAK ANDREW M) 2 October 1990 (1990-10-02) abstract column 6, line 42 - line 47	30-34
A	US 5 729 251 A (NAKASHIMA TADASHI) 17 March 1998 (1998-03-17) column 5, line 5 -column 6, line 33 column 16, paragraph 1 column 20, line 38 - line 41 column 21, line 48 - line 52 column 47, line 40 - line 43	30,41-45
A	US 4 797 544 A (FIGUEROA JOHN A ET AL) 10 January 1989 (1989-01-10) abstract column 6, line 20 - line 23	30-34

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US 99/30507

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. ☐ Claims Nos.:
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:

3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this International application, as follows:

see additional sheet

1. ☒ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.

2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.

3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:

4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☒ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. Claims: 1-8,10-12,16-29,35-37,39

A computer input system (and corresponding method) for providing input information to a computer, the system comprising a computer input device and first and second patterns disposed on a surface, the patterns being respectively adapted, in combination with a controller coupled to a pattern detector, to provide respectively either relative position information indicative of relative movement of the input device or absolute position information indicative of an absolute position of the input device.

2. Claim : 9

A computer input device for providing input information to a computer comprising a first pattern disposed on a first side of a substrate and a second pattern disposed on a second, different side of the substrate.

3. Claims: 13-15,38,40

A computer input system (and corresponding method) for providing input information to a computer, the system comprising a computer input device and first and second patterns disposed on a surface in which the computer input device issues a command to an application running on the computer based on the patterns, the command being indicative of a log on command and user authentication information.

4. Claims: 30-34, 41-45

A data structure passed from a computer pointing device to a computer (and corresponding input device), the data structure comprising three data portions indicative respectively of movement of the pointing device relative to a surface, of actuation of an actuation button and of a predetermined image detected on the surface.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US 99/30507

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
WO 9410652 A	11-05-1994	US 5420943 A	30-05-1995
DE 29515871 U	16-11-1995	NONE	
US 5848231 A	08-12-1998	CA 2193041 A	13-08-1997
		CA 2197409 A	13-08-1997
		US 5859420 A	12-01-1999
		US 5991431 A	23-11-1999
GB 2312040 A	15-10-1997	NONE	
US 4804949 A	14-02-1989	NONE	
US 4961138 A	02-10-1990	AU 613637 B	08-08-1991
		AU 1727988 A	02-12-1988
		CA 1324424 A	16-11-1993
		DE 3882370 A	19-08-1993
		DE 3882370 T	24-02-1994
		EP 0362255 A	11-04-1990
		IN 169831 A	28-12-1991
		JP 2503964 T	15-11-1990
		WO 8808565 A	03-11-1988
US 5729251 A	17-03-1998	JP 3006448 B	07-02-2000
		JP 8221180 A	30-08-1996
US 4797544 A	10-01-1989	AU 593934 B	22-02-1990
		AU 7753387 A	10-02-1988
		DE 3785440 A	19-05-1993
		DE 3785440 T	29-07-1993
		EP 0277964 A	17-08-1988
		JP 1500553 T	23-02-1989
		JP 4006150 B	04-02-1992
		WO 8800712 A	28-01-1988